DENTAL FEAR AND ANXIETY AMONG ORTHODONTIC PATIENTS — A PAKISTANI SAMPLE

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ABSTRACT

Objective of this study was to determine the frequency of anxiety levels among orthodontic patients using Norman Corah's Dental Anxiety Scale, (DAS) and its correlation with gender, age and education of patient. It was a cross sectional study. The study was carried out at Orthodontics Department, Armed Forces Institute of Dentistry (AFID), Rawalpindi from October 2014 to January 2015. A self-reported assessment scale developed by N. Corah, Dental Anxiety Scale (DAS) was used in the study. It was used in the form of a questionnaire containing data on gender, age, education. A total of 350 questionnaires were distributed among consented participants and finally valid 233 questionnaires were recruited in the study. Out of 233 patients, 69 (30%) were male and 164 (70%) were females. 46% participants had mild anxiety score, whereas only 4% participants experienced severe anxiety. With higher education level of patient lesser anxiety score was reported in this study (p= 0.015). Results showed that patients with higher education were significantly less dentally anxious (p<0.01) about orthodontic treatments than patients with lesser education. Demographic characteristics such as gender and age of the patient had statistically no significant effect on DAS.

Key Words: Anxiety, Orthodontic Procedures, Corah’s Dental Anxiety Scale (DAS-R), Dental Phobia.

INTRODUCTION

Anxiety is an emotion characterized by feelings of tension, worried thoughts, apprehension and physical changes like increased blood pressure, nausea and palpitation etc. It is a multisystem response to a perceived threat or danger. The terms anxiety, phobia and fear are used interchangeably in the literature and differentiating one term from other is often complicated. Anxiety and its related conditions are one of the most prevalent psychological disorders in the general population.1

Dentist used to deal with anxious patients on daily bases. The physiological impact of dental anxiety not only results in avoidance and delay in dental treatment but also effect quality of treatment provided to patients. Despite improvements in dental technology, the prevalence of dental anxiety has remained relatively stable since the 1960s.2 It is estimated that approximately one in six Australians have high levels of dental fear and among some segments of the population the prevalence can be as high as 35%.3 A study conducted among university students in Pakistan also showed high prevalence (21.8%) of dental anxiety in the study population.4

It is well established in the literature that dental treatment is associated with different aspect of anxiety among populations but very few studies have investigated dental anxiety among patients receiving orthodontic treatment.5,6,7 Usually it is believed that dental anxiety and fear is related to the stimuli like drilling and injections.4,10 However pain also results in anxiety and pain experienced during orthodontic treatment can be a reason for discontinuation or delaying of orthodontic visit. A delay in orthodontic visit not only prolongs treatment duration but also may result in poor oral hygiene, compromised periodontal status, low self esteem and general well being. The literature reveals very little work has been conducted so far in Pakistan.
to assess dental fear and anxiety among orthodontic patients. The rationale of this study is to assess dental fear and anxiety among orthodontic patients and create an awareness of problem, so that anxious and fearful orthodontic patients can be facilitated accordingly.

**METHODOLOGY**

This study was conducted as a cross sectional survey with convenience sampling technique at Orthodontics Department, Armed Forces Institute of Dentistry (AFID), Rawalpindi from October 2014 to January 2015. Three graduate students of this institute contacted the orthodontic patients reporting for treatment at this institute, and after obtaining consent handed out the questionnaire to patient and collected after its completion. A total of 350 Questionnaires were distributed among both genders of patients visiting for follow up orthodontic treatment, in which 278 forms were returned and after further evaluation of submitted questionnaire 45 were rejected due to incompletely filed forms or with double answers for single question, finally 233 questionnaires were included in this study. The Questionnaire consisted of demographic details of patient and next portion consisted of four questions for evaluation of Dental Anxiety based on Norman Corah’s Dental Anxiety Scale (DAS). Each question in Corah’s DAS has five multiple choices, the first option denoted most relaxed graded as score ‘1’ and progressively increasing to most anxious at option five graded as score ‘5’. The accumulated sum of all four questions of Corah’s DAS was 4 as minimum and 20 as maximum. Score of 4-9 denotes mild anxiety, score of 9-12 denotes moderate anxiety, score of 13-14 denotes high anxiety and score of 15-20 denotes severe anxiety or phobia.

SPSS version 21 was used to for statistical evaluation of data. Chi-square test was applied to know significance.

**RESULTS**

Out of 233 patients, 69 (30%) were male and 164 (70%) were females. Mean age of the participants was 23.31 years (S.D ± 6.8). Majority of patients were either less than or equal to 25 years of age (n=161, 69%). As far as education is concerned majority of patients in this study were graduates (n=110, 47%).

In our study, 46% participants had mild anxiety score (n=107) whereas only 4% participants experienced severe anxiety (n=10). (Fig 1)

No statistically significant association was seen between gender of the participants and anxiety score (Fig 2). Similarly age group was also not statistically associated with anxiety levels. A statistically significant association was observed between education level of patient and their anxiety score (Table 1). Higher the education level of patient lesser the anxiety score reported in this study (p= 0.015).

**TABLE 1: ASSOCIATION BETWEEN EDUCATION LEVEL AND DENTAL ANXIETY SCORES OF ORTHODONTIC PATIENT**

<table>
<thead>
<tr>
<th>Education of participant</th>
<th>Anxiety Score</th>
<th>P-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mild Anx.</td>
<td>Moderate Anx.</td>
</tr>
<tr>
<td>Less than or equal to 10 years</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>Intermediate</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Graduation</td>
<td>49</td>
<td>46</td>
</tr>
<tr>
<td>Post Graduation</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Total Patients</td>
<td>107</td>
<td>96</td>
</tr>
</tbody>
</table>

Fig 1: Dental Anxiety Score of Orthodontic patients

Fig 2: Association between gender and Dental Anxiety Score of Orthodontic patients
DISCUSSION

The purpose of this research was to assess the prevalence of dental fear and anxiety orthodontic patients and its association with gender, age groups and education of patient using a Corah’s DAS questionnaire.

The total sample size of study was aimed at getting valid 300 responses however finally valid forms of 233 subjects were considered for data evaluation. Out of 233 patients, 69 (30%) were male and 164 (70%) were females. Mostly the study patients were female that could be due to their more concern about the esthetics and thus seeking orthodontic treatment, which is consistent with findings from previous studies. Even though the majority of studies report higher anxiety levels among females, no significant difference was found between males and females in this study among orthodontic patients. This can be best explained as majority of participants are with higher educational qualifications.

In this study, prevalence of anxiety was as follow; 46% participants had mild anxiety, 41% participants had moderate level anxiety, 9% participants had high anxiety, whereas only 4% participants experienced severe anxiety or phobia. In the present study, orthodontic patients had high percentages of mild and moderate anxiety due to the fact that they were routinely visiting their orthodontist and also more aware about the expected procedures than patients visiting for endodontic or oral surgical procedures.

Participants were divided into four groups on the basis of age, i.e. Group 1 (less than and equal to 15 year), Group 2 (16-25 years), Group 3 (26-35 years) and Group 4 (36 years and above). Majority of patients were in Group 2. The mean age of the participants was 23.31 years. The main factor that most of the subjects in the current study were in Group 2 as they were in the ideal ages for getting orthodontic treatment by orthodontist referred by their primary care general dentists. As mentioned in the results section, that young subjects tend to be more anxious than older individuals, however results were not significant.

Other factor that was included in our study was patient education level. In our study, the prevalence of anxious patients drastically decreased in patients with higher education with statistically significant results (p= 0.015). The reason we can expect of this decrease in high and severe anxiety level in the highly educated patients is that they feel more confident, shows more trust toward their treating orthodontist and well informed and educated about their dental problem.

The limitation of study showing more inclination towards mild and moderate level anxiety among orthodontic patients could be that participants were mostly routinely visiting orthodontist for their follow up, also Pierce and Kirkpatrick suggested that men reported lower levels of fear than women in response to specific fear because they were not being truthful. This indicates a reporting bias in men. In addition, factor such as the reason of the visit to the orthodontist office and time elapsed since the beginning of the treatment and who referred the patient was not considered in this study that how they will influence the level of dental anxiety regarding orthodontic treatment. It seems reasonable to expect that the more time period that passed since patients start treatment, the more familiar and comfortable they become, and therefore, the lower their level of dental anxiety about orthodontic treatment.

Further investigations, for instance prospective studies measuring dental anxiety about orthodontic treatment at different time intervals, are needed to determine dental anxiety in the same patient prior to start of orthodontic treatment, in middle of orthodontic treatment and at the end of orthodontic treatment.

Future research should include an assessment of the socio-economic status, and patient level of concern about their esthetics in an effort to understand the difference in anxiety levels between the two populations studied. It would also be interesting to investigate dental anxiety among the different ethnic populations since different background, life experiences and values could influence the experience of patients seeking dental and orthodontic treatment.

CONCLUSION

Dental anxiety is prevalent among patients seeking orthodontic treatment. Patients with higher education were significantly less dentally anxious (p<0.01) about orthodontic treatments than patients with lesser education. Demographic characteristics such as gender and age of the patient had statistically no significant effect on DAS.

This study supports the understanding that dental anxiety is multifaceted and contributing factors extend beyond traditionally accepted stimuli of drills and needles, which are not commonly used in orthodontic practice.

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